WHAT IS CLAIMED

1. A method for determining the position and/or orientation of a creature (3) relative to an environment, **characterized in** that it comprises that the creature is connected to a locating member (4) including a transducer (5) so that the relative positions and/or orientations of the creature and the transducer are arranged to be within a limited interval, said transducer determining its position and/or orientation relative to the environment by receiving incident optical signals from signal sources (9) in the environment and by recording the relative incident positions of the received signals on a surface of the transducer, and that the position and/or orientation of the creature is determined by means of the position and/or orientation determined for the transducer.

2. A method for determining the position and/or orientation of a creature (3) relative to an environment, **characterized in** that it comprises that the creature is connected to a locating member (4) including a transducer (5) so that the relative positions and/or orientations of the creature and the transducer are arranged to be within a limited interval, said transducer determining its position and/or orientation relative to the environment by receiving incident signals from signal sources (9) in the environment by means of at least one phased-array, and that the position and/or orientation of the creature is determined by means of the position and/or orientation determined for the transducer.

3. A method according to claim 2, **characterized in** that for said signals microwaves are used.

4. A method according to claim 2, **characterized in** that for

said surface acoustic waves are used.

5. A method according to claim 1, **characterized in** that when the creature (3) moves the position and/or orientation of the creature is repeatedly determined by that the transducer (5) repeatedly determines its position and/or orientation by receiving incident signals from signal sources (9) in the environment.

6. A method according to claim 1, **characterized in** that the position and/or orientation of the creature (3) relative to its preceding position and/or orientation is determined.

7. A method according to claim 1, **characterized in** that the positions and/or orientations determined for the creature (3) are recorded for mapping the movement of the creature relative to the environment.

8. A method according to claim 6, **characterized in** that the positions and/or orientations determined for the creature (3) are recorded for mapping the relative movement of the creature.

9. A method according to claim 1, **characterized in** that when the creature (3) moves relative to the environment at least one property of the environment is recorded and/or mapped.

10. A method according to claim 1, **characterized in** that said determining of position and/or orientation of the creature (3) is performed while the creature moves in a non-predictable way.

11. A method according to claim 1, **characterized in** that said determining of position and/or orientation of the

creature (3) is performed while the creature moves in a trained way.

12. A method according to claim 1, **characterized in** that when the creature (3) moves the movement of the creature is directed by means of the position and/or orientation determined for the creature.

13. A method for locating a phenomenon (22) in an environment, **characterized in** that it comprises that a creature (3) is connected to a locating member (4) including a transducer (5) mechanically connected to a component (23) intended for pointing out phenomena in the environment, that the pointing component is directed by the creature towards the phenomenon from at least one pointing position, the transducer determining its position and/or orientation and thereby determining the position and/or orientation of the pointing component for said at least one pointing position relative to the environment by receiving incident signals from signal sources (9) in the environment, and that the position and/or orientation of the pointed out phenomenon relative to the environment is determined by means of the position and/or orientation determined for the pointing component.

14. A method according to claim 13, **characterized in** that the pointing component (23) is directed by the creature (3) towards the phenomenon (22) from two different pointing positions.

15. A method according to claim 13, **characterized in** that the position and/or orientation of the pointed out phenomenon is determined by means of a model (28) of the environment.

16. A method for determining if the position and/or orientation of a phenomenon (22) relative to an environment is in accordance with a reference, **characterized in** that it comprises that a creature (3) is connected to a locating member (4) including a transducer (5) so that the relative positions and/or orientations of the creature and the transducer are arranged to be within a limited interval, that the reference is defined by the introduction of at least one condition regarding the position and/or orientation of the locating member relative to the environment, that the position and/or orientation of the locating member relative to the environment is determined by means of the transducer by receiving incident signals from signal sources (9) in the environment and by recording the relative incident directions of the signals received by means of the transducer, and that the position and/or orientation determined for the locating member is compared with the reference so that at least one possibly occurring state in which said at least one condition is fulfilled may be recorded.

17. A method according to claim 16, **characterized in** that the locating member (4) is put by the creature (3) into mechanical contact with an object (19, 30) in the environment for fixing the locating member or a part thereof and thereby the transducer (5) relative to the object so that said at least one condition is fulfilled.

18. A method according to claim 17, **characterized in** that the locating member (4) and the object (19, 30) are moved into engagement with each other so that said at least one condition is fulfilled.

19. A method according to claim 16, **characterized in** that states in which said at least one condition is fulfilled is recorded only when a further predefined measure is performed substantially at the same time by the creature (3).

20. A method for determining the position and/or orientation of an object (30) relative to an environment by means of a creature (3), **characterized in** that it comprises that the creature is connected to a locating member (4) including a transducer (5), that the locating member is put into mechanical contact with the object by the creature, that the position and/or orientation of the locating member relative to the environment is determined by means of the transducer by receiving incident signals from signal sources (9) in the environment and by recording the relative incident directions of the signals received by means of the transducer, and that the position and/or orientation of the object is determined by means of the position and/or orientation determined for the locating member.

21. A method according to claim 20, **characterized in** that the position and/or orientation of the object (30) relative to its preceding position and/or orientation is determined.

22. A method according to claim 20, **characterized in** that the locating member (4) and the object (30) are moved into engagement with each other for fixing their relative positions and/or orientations.

23. A method according to claim 1, **characterized in** that it comprises using of a signal receiving direction area, that constitutes a solid angle exceeding 0,2 steradianes (sr), and which is formed by the collected amount of signal receiving directions in which the transducer is arranged to

receive incident signals from said signal sources (9).

24. A method according to claim 23, **characterized in** that the signal receiving direction area constitutes a solid angle that exceeds 1 steradian.

25. A method according to claim 23, **characterized in** that the signal receiving direction area constitutes a solid angle that exceeds 2 steradians.

26. A method according to claim 23, **characterized in** that the signal receiving direction area constitutes a solid angle that exceeds 4 steradians.

27. A method according to claim 23, **characterized in** that it comprises using of said signal receiving direction area which is topologically connected.

28. A method according to claim 1, **characterized in** that occurences caused by the presence of the creature (3) and/or the actions thereof are recorded.

29. A method according to claim 1, **characterized in** that information is transferred from the locating member (4) to the creature (3).

30. A method according to claim 1, **characterized in** that information is transferred from the creature (3) to the locating member (4).

31. A method according to claim 29, **characterized in** that information about the viewing direction of the creature (3) is transferred.

32. A method according to claim 29, **characterized in** that information about the movement direction of the creature (3) is transferred.

33. A method according to claim 29, **characterized in** that information about the nature of the environment is transferred.

34. A method according to claim 29, **characterized in** that information about movement paths (16) is transferred.

35. A method according to claim 1, **characterized in** that information from the locating member (4) is transferred to at least one central computer unit (13).

36. A method according to claim 1, **characterized in** that information from at least one central computer unit (13) is transferred to the locating member (4).

37. A method according to claim 1, **characterized in** that information from the transducer (5) is transferred to at least one computer unit (13) of the locating member (4).

38. A method according to claim 1, **characterized in** that information from at least one computer unit (11) of the locating member (4) is transferred to the transducer (5).

39. A method according to claim 35, **characterized in** that information is transferred to the creature (3) through a means arranged in the environment and controlled by said computer unit (11, 13).

40. A method according to claim 39, **characterized in** that information from said information transferring means in the

environment is transferred to the creature (3) through a representation unit (15) of the locating member (4).

41. A method according to claim 1, **characterized in** that the nature of the environment is recorded by the creature (3) by means of a sensor.

42. A method according to claim 1, **characterized in** that the position and/or orientation of the transducer (5) is determined by recording the relative incident directions of the signals received by means of the transducer.

43. A method according to claim 2, **characterized in** that the position and/or orientation of the transducer (5) is determined by receiving incident optical signals from the signal sources (9) in the environment.